

GEMS/ACCUVOTE-TSX WITH ACCUVIEW/ACCUVOTE-OS

**Diebold Election Systems, Inc.
GEMS Version 1.18.22
AccuVote-TSx Ballot Station, Firmware Version 4.6.2
with AccuView Printer Module,
Key Card Tool Version 1.0.1,
Spyrus Voter Card Encoder 1.3.2,
VC Programmer 4.1.11,
AccuVote-OS Firmware 1.96.4,
AccuVote-OS Firmware Version 2.0.12 with AccuFeed**

Staff Review and Analysis

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I. SUMMARY OF THE APPLICATION

Procedures, hardware, firmware and software developed by Diebold Election Systems, Inc. for use with GEMS Software Version 1.18.22, AccuVote-TSx 4.6.2 with AccuView Printer Module (AVPM) hardware, Key Card Tool Version 1.0.1, Voter Card Encoder 1.3.2, VC Programmer 4.1.11, AccuVote-OS firmware 1.96.4, and AccuVote-OS firmware 2.0.12 with AccuFeed hardware.

II. SUMMARY OF THE SYSTEM

The application consists of seven components.

1. GEMS v. 1.18.22

GEMS is a windows-based election management system software application that is used to manage an election. Prior to the election, the jurisdiction uses GEMS to define and configure districts, contests and candidates. The system can then be used to design ballot layout with rotations for the TS and TSx DREs, as well as to produce camera ready copy for printing optical scan ballots. The election data is downloaded to configure the TS and TSx units, as well as the OS units for an actual election. Finally, the GEMS software is used to upload, tabulate and report actual vote results from the TS, TSx and OS units.

The GEMS software was last certified on August 10, 2004 as version 1.18.19.

Significant changes between that version and the current version include:

- GEMS now provides the ability to print out unaccepted provisional ballots. In accordance with election law, this will allow election officials to manually duplicate the valid vote choices for those contests in which a voter was entitled to vote when that voter votes a provisional ballot in the wrong precinct. In previous versions, the vote choices on a ballot could not be viewed until the entire ballot had been accepted. (Due to a problem with how GEMS reports write-in votes on provisional ballots, it is still not acceptable to allow provisional voting on the TSx.)
- In the previous version of GEMS the Election Summary reports indicate an incorrect value for the 'Cards Cast' if the report is filtered to a reporting subset of contests which did not include a jurisdiction wide contest or to a reporting group (absentee or precinct voters). In this version of GEMS, this has been corrected and the reports show a total 'Cards Cast' appropriate to the report set or group selected.
- Several minor bug fixes such as: the GEMS program would crash if the wrong option was selected when exporting vote results; the contest label would download incorrectly to the AccuVote-TSx if the contest title included the '%' character; invalid contest IDs when printing artwork if a jurisdiction has over 8192 precincts, invalid options were removed from the user interface.
- Modification to features that are not used or allowed in California.

2. AccuVote-TSx v. 4.6.2 with AccuView Printer Module

The AccuVote-TSx is a touch-screen voting device that records the voter's intentions as he or she touches the LCD screen. Voted ballots and results tallies are stored on redundant storage; for every ballot cast, results are stored to both an external PCMCIA memory card and on internal flash memory. The device supports high contrast and enlarged image as well as audio voting for the visually impaired. Finally, the AccuVote-TSx supports presentation of the ballot in multiple languages, including all written languages required in California.

The AccuView Printer Module is a device that can be attached to the AccuVote-TSx to produce a voter-verified paper audit trail (AVVPAT). Prior to finalization of the ballot, the voter's choices are printed and displayed in the selected language under a clear window for verification by the voter. The ballot selections are also printed with a barcode for easier tabulation in an audit after the election. The voted ballots are spooled sequentially and stored in a sealed canister. The AccuView also features a plastic lens that magnifies the paper record for those with low vision and a solid cover to hide the paper record to insure the privacy of blind voters.

The AccuVote-TSx with firmware version number 4.4.3.27 was conditionally certified on November 20, 2003. After problems with the device during the March 2004 Presidential Primary and failure to receive federal qualification, the TSx was decertified for use in California on April 30, 2004. Changes to the firmware in this version from the prior version also include:

- Changes to meet the 2002 Federal Voting System Standards for voting equipment.
- Merging of the development trees for both the AccuVote-TS and the AccuVote-TSx. The current version of firmware will run on either device (Though the current application only covers the TSx)
- Support for the new AccuView Printer Module

3. Key Card Tool v. 1.0.1

The Key Card Tool is a PC-based software application designed to enhance the security of the AccuVote-TSx devices. When used with an external smart card reader, this software programs the smart cards with a user selected security key and encryption that can be changed for each election.

The Key Card Tool v. 1.0.1 was first certified for use with GEMS and the Diebold voting systems on August 10, 2004, and is submitted unchanged for use in this application.

4. Spyrus Voter Card Encoder v. 1.3.2

The Spyrus Voter Card Encoder is a handheld device which is used to activate and program individual voter access cards that, when inserted into an AccuVote-TSx touch screen DRE, allow the voter access to the AccuVote and the correct ballot style. Intended for use by poll workers, each Voter Card Encoder is capable of storing

ballot styles for up to eight different parties. In a primary, this means that two Spyrus' would need to be used in each precinct.

The Voter Card Encoder v. 1.3.2 was first certified for use with GEMS and the Diebold voting systems on August 10, 2004, and is submitted unchanged for use in this application.

5. VCProgrammer v. 4.1.11

VCProgrammer is a PC based software application designed to be used for early voting. When used with an external smart card reading device, it can be used to activate and program voter access cards for use on the AccuVote-TSx for a virtually unlimited number of ballot styles and parties.

Optionally, VCProgrammer may be configured to interface directly with a voter registration system during an actual election. In this instance, once the voter is identified to the system, the voter's precinct and party are automatically identified to configure the voter access card with the correct ballot style.

The VCProgrammer v. 4.1.11 was first certified for use with GEMS and the Diebold voting systems on October 4, 2004, and is submitted unchanged for use in this application.

6. AccuVote-OS Optical Scan v. 1.96.4

The AccuVote-OS is Diebold's paper based optical scan ballot reader. With firmware v. 1.96.4, it is configured for stand-alone use in a polling place. Each such precinct count AccuVote-OS unit is loaded with a memory card programmed with ballot information for the corresponding polling location or precinct.

The AccuVote-OS will accommodate three different size ballots: 8 ½" x 11", 8 ½" x 14" and 8 ½" x 18". Throughout the election, the AccuVote-OS tabulates votes on the memory card as the ballots are fed individually by the voter. The precinct counter can be configured to reject ballots or sort them separately in the ballot box based on user determined parameters such as over-votes or under-votes. At the close of the election, vote results are uploaded to the GEMS system either by loading the memory card or, optionally, over a telephone connection using the AccuVote's internal modem.

The AccuVote-OS with firmware v. 1.96.4 was first certified for use with GEMS and the Diebold voting systems on August 17, 2004, and is submitted unchanged for use in this application.

7. AccuVote-OS Central Count v 2.0.12 with AccuFeed Ballot Feeder

When the AccuVote-OS ballot reader is configured with firmware v. 2.0.12 and linked to the GEMS server with a network connection, it can be used for central batch tabulation of ballots.

As a central tabulator, the AccuVote accepts the same size ballots as when the reader is configured for precinct use. As each ballot is read, the scanner validates the ballot type and uploads vote selections directly to the GEMS server. The AccuVote accepts and reads any valid ballot style regardless of orientation. Ballots need not be presorted by precinct.

The AccuVote-OS Central Count with firmware v. 2.0.12 was first certified for use with GEMS and the Diebold voting systems on September 28, 2004, and is submitted unchanged for use in this application.

The AccuFeed ballot feeder is a mechanical ballot feeding device which can be used with the AccuVote-OS. This hardware allows the operator to place stacks of ballots into the input stacker tray that are then fed into the AccuVote-OS optical scan unit. The AccuFeed ballot reader does not have any resident firmware; it is a hardware only device. The AccuFeed ballot feeder sits on top of the AccuVote-OS and is controlled by the AccuVote-OS via a single optical coupler.

The AccuFeed ballot feeder was first certified for use with the AccuVote-OS on September 28, 2004, and is submitted unchanged for use in this application.

III. TESTING INFORMATION AND RESULTS

1. Federal Testing

Ciber, Inc. successfully completed federal qualification testing of GEMS v. 1.18.22 to the 2002 Federal Voting Systems Standards. A copy of their report has been received.

Wyle Laboratories has successfully completed federal qualification testing of the AccuVote-TSx, firmware v. 4.6.2, with the AccuView Printer Module to the 2002 Federal Voting Systems Standards. A copy of their testing report, dated May 17, 2005, has also been received.

NASED has previously qualified GEMS v.1.18.22 together with AccuVote-OS v. 1.96.4 and 2.0.12, and the AccuFeed as system numbers **N-1-06-12-12-003** and **N-1-06-12-12-005**. Although some of these components were tested to the 2002 standards, the overall qualification was to the 1990 standards.

NASED qualified the AccuVote-TSx together with GEMS v. 1.18.22, SpyruS Vote Card Encoder 1.3.2, Key Card Tool 1.0.1 and VCProgrammer as system number N-1-06-12-22-008. Once again, although the AccuVote-TSx itself qualified to the 2002 Voting System Standards, the overall system qualification was to the 1990 standards.

2. State Testing by the Secretary of State and Consultant.

The system was tested in Sacramento, California from March 28, 2005 to April 1, 2005 by Secretary of State staff in conjunction with the state's technical expert, Mr. Steve

Freeman. Additional testing was performed by Secretary of State staff on April 11, June 2 and June 3, 2005. Finally, representatives from the counties, the Technical Advisory Board and the accessibility community were invited to attend additional testing on April 6, 2005.

Testing on the AccuVote-TSx v. 4.6.2 with AccuView Printer Module (AVPM) hardware, Key Card Tool Version 1.0.1, Voter Card Encoder v. 1.3.2, VC Programmer v. 4.1.11, AccuVote-OS v. 1.96.4, and AccuVote-OS v. 2.0.12 with AccuFeed hardware in conjunction with GEMS v. 1.18.22 was generally completed successfully. However, during testing the following issues were noted:

1. The AccuVote-TSx was originally submitted and tested with firmware version 4.6.1. In this version, the printed AVVPAT ballot image on the AccuView included a unique ballot ID number. It is conceivable that a person in possession of that ID number with access to GEMS can determine exactly how an individual voter cast his or her ballot. The vendor subsequently corrected this by removing the ballot ID from the paper ballot image in firmware version 4.6.2. This new version was tested and qualified by the VSTL, Wyle Laboratories. On June 2 and June 3, the State conducted additional testing on this new version to verify the successful correction of this issue.
2. During initial State testing in April, the AVPM was observed to have problems with the paper feed multiple times. When asked about this, the vendor stated that the AVPM units we were testing were 'prototypes.' During the June 2 and 3 testing, the vendor supplied the 'pre-production' unit that was tested by the VSTL. Multiple ballots were cast using this AVPM without any paper feed problem during this testing.
3. During testing on June 2 and 3, it was discovered that the magnifying lens supplied with the AVPM for use by the visually impaired did not display the bottom lines of the ballot image in the magnified view.
4. The AccuView printer module spools ballot images in sequential order. The VSP has previously ruled that such systems are acceptable if procedures are in place to protect the anonymity of the voter; however, standards have not yet been adopted for what types of procedures would be acceptable.
5. The TSx uses two types of smart cards for access to managerial functions: the Supervisor card and the Administrator card. The Supervisor card allows the holder to perform diagnostic tests, create or voter access cards, open and close the polls, generate reports and upload vote results to GEMS and is designed primarily for use by poll workers. The Administrator card allows its user to access such functions as resetting an election, setting TSx system options, and accessing election data archives and is designed for use by elections officials. While the encryption key for the Supervisor is set by the county using the Key Card Tool, the current version of the Key Card Tool does not recognize the Administrator card. The encryption key for the Administrator card is fixed and set by the vendor.
6. The AccuVote-TS Write-In Summary By Race and the AccuVote-TS Write-In Summary By Deck/Machine reports were discovered to double count write-in ballots in races with a shadow contest. In the case of California, this would

- include a primary election in which Decline to State voters are allowed to vote in a party's primary.
7. The AccuVote-TS Write-In Detail By Ballot and the AccuVote-TS Write-In Detail By Race reports contain a list of ballots that contain a write-in and who those votes were for. However, this list includes all provisional ballots, including those that have not yet been accepted and that have been rejected. As such, provisional ballots should not be cast on the TSx.
 8. A new "suppress unreferenced precinct" option creates a potential error on the SOVC report whereby not all candidates may be listed on the report.

IV. COMPLIANCE WITH STATE AND FEDERAL LAWS AND REGULATIONS

The Secretary of State of California has developed and promulgated a procedure for approving, certifying, reviewing, modifying, and decertifying voting systems, vote tabulating systems, election observer panel plans, and auxiliary equipment, materials and procedures.

Four sections of this procedure, Sections 103, 104, 504, and 601, describe in detail the requirements any voting system must meet in order to be approved for use in California elections. These sections are described in detail and the system is analyzed for compliance in this Administrative Review and Analysis of the system.

1. §103 (a) (1): The machine or device and its software shall be suitable for the purpose for which it is intended.

The system meets this requirement except as noted under Section III. These exceptions should be handled with qualifications to the system's certification.

2. §103 (a) (2): The system shall preserve the secrecy of the ballot.

Due to the printed ballot ID on the AccuView ballot image, as well as the sequential storage of the ballot images on the AccuView, procedures will be required to protect the secrecy of the ballot. Otherwise, the system meets this requirement.

3. §103 (a) (3): The system shall be safe from fraud or manipulation.

The system is more secure than the previously certified Diebold system as the functions on the Supervisor and Administrator cards have been separated into two separate cards, restricting the features that can be used by poll workers.

However, because the encryption key for the AccuVote-TSx's Administrator card is set by the factory, the system could be vulnerable to fraud or manipulation if the same encryption key is used to encode Administrator cards for multiple jurisdictions or elections. For this reason, the vendor should be required to issue these cards with unique encryption keys for each jurisdiction and for each election.

In all other aspects, the system is at least as secure as the previously certified Diebold systems.

4. §103 (a) (4): The system shall be auditable for the purposes of an election recount or contest procedure.

The system meets these requirements. The AccuVote-TSx configured with the AccuView provides a voter verified paper audit trail in addition to the ballot images stored in memory on the TSx.

5. §103 (a) (5): The system shall comply with all appropriate federal and California laws and regulations.

The system meets this requirement. The AccuVote-TSx configured with the AccuView view printer module meets the California AVVPAT standards.

6. §103 (a) (6): The system shall have been certified, if applicable, by means of qualification testing by a Nationally Recognized Test Laboratory (NRTL) and shall meet or exceed the minimum requirements set forth in the *Performance and Test Standards for Punch Card, Mark Sense, and Direct Recording Electronic Voting Systems*, or in any successor voluntary standard document, developed and promulgated by the Federal Election Commission.

The system has successfully completed federal qualification testing. The new components to this system, GEMS v. 1.18.22 & the AccuVote-TSx v. 4.6.2 with the AccuView Printer Module all meet the Federal 2002 Voting Systems Standards. However, because some components of the system have not yet qualified to these standards, the overall NASED certification of this system is to the 1990 standards with system certification numbers N-1-06-12-12-003, N-1-06-12-12-005 and N-1-06-12-22-008.

7. §103 (b): In addition to the requirements of subdivision (a) of this section, voting systems, procedures, and equipment approved and certified by the Secretary of State shall promote accessible voting opportunities for persons with physical disabilities.

The AccuVote-TSx provides improved access for the visually impaired through its audio mode, as well as its high contrast and enlarged text for the LCD display.

It should be noted that:

1. The AccuVote-TSx does not support “sip-and-puff” technology.
2. The AccuVote-TSx does not support curbside voting.
3. As noted in Section III, the magnifying lens for the AVPM does not display the last few lines of the ballot image.

8. §104 (a): Certification consists of three separate levels of testing: qualification, certification and acceptance.

Federal qualification testing has been successfully completed and system qualification numbers have been issued by NASED.

Staff in conjunction with a technical consultant to the Secretary of State successfully performed state certification testing.

The county elections official will conduct acceptance testing as each county takes receipt of the system.

9. §104 (b): Certification tests shall include functional tests and qualitative assessment to ensure that the system operates in a manner that is acceptable under federal and state law and regulations.

It is the opinion of the expert technical consultant that the scope of the certification test was adequate to make basic recommendations and observations about the logical accuracy, some user friendliness issues, and compliance with state law.

10. §104 (c): Certification tests shall enhance public confidence by assuring that the system protects the secrecy of the ballot and the security of the voting process, and records and counts votes accurately.

In all tests performed, this system recorded and counted votes accurately. With procedures to address the sequential nature of the audit trail storage, the secrecy of the paper record can be protected. By requiring the vendor to issue Administrator smart cards with encryption keys that are unique to each jurisdiction and each election, the voting process will be as secure as with the currently certified Diebold systems. Finally, the AccuView’s voter verified paper audit trail should serve to enhance public confidence that their vote is accurately recorded when using the AccuVote-TSx DRE device.

11. §104 (d): Certification tests shall promote public confidence that the system is easy to use or ‘voter friendly.’

The proposed system is not any less voter friendly than the currently certified Diebold systems.

12. **§104 (e): Certification testing shall demonstrate that the system creates an audit trail showing both that the voter was able to vote for the candidate or for or against a measure of his or her choice and that the system correctly and consistently interpreted the voter's votes.**

The system meets this requirement. The AccuVote-TSx configured with the AccuView printer module provides an AVVPAT.

13. **§504: The Evaluation shall include a review of California Elections Code sections, which address the application.**

A review of the appropriate Elections Code sections was conducted.

§15360. During the official canvass of every election in which a voting system is used, the official conducting the election shall conduct a public manual tally of the ballots tabulated by those devices cast in 1 percent of the precincts chosen at random by the elections official. If 1 percent of the precincts should be less than one whole precinct, the tally shall be conducted in one precinct chosen at random by the elections official.

In addition to the 1 percent count, the elections official shall, for each race not included in the initial group of precincts, count one additional precinct. The manual tally shall apply only to the race not previously counted.

The system meets this requirement.

§19300 permit the voter to vote for all the candidates of one party or in part for the candidates of one party and in part for the candidates of one or more other parties.

The system meets this requirement.

§19301. A voting machine shall provide in the general election for grouping under the name of the office to be voted on, all the candidates for the office with the designation of the parties, if any, by which they were respectively nominated.

The designation may be by usual or reasonable abbreviation of party names.

The system meets this requirement.

§19302. The labels on voting machines and the way in which candidates' names are grouped shall conform as nearly as possible to

the form of ballot provided for in elections where voting machines are not used.

The system meets this requirement.

§19303. If the voting machine is so constructed that a voter can cast a vote in part for presidential electors of one party and in part for those of one or more other parties or those not nominated by any party, it may also be provided with: (a) one device for each party for voting for all the presidential electors of that party by one operation, (b) a ballot label therefore containing only the words “presidential electors” preceded by the name of the party and followed by the names of its candidates for the offices of President and Vice President, and (c) a registering device therefore which shall register the vote cast for the electors when thus voted collectively.

If a voting machine is so constructed that a voter can cast a vote in part for delegates to a national party convention of one party and in part for those of one or more other parties or those not nominated by any party, it may be provided with one device for each party for voting by one operation for each group of candidates to national conventions that may be voted for as a group according to the law governing presidential primaries.

No straight party voting device shall be used except for delegates to a national convention or for presidential electors.

The system complies with these requirements.

§19304. A write-in ballot shall be cast in its appropriate place on the machine, or it shall be void and not counted.

The system complies with these requirements except as noted under Section III.

§19320. Before preparing a voting machine for any general election, the elections official shall mail written notice to the chairperson of the county central committee of at least two of the principal political parties, stating the time and place where machines will be prepared. At the specified time, one representative of each of the political parties shall be afforded an opportunity to see that the machines are in proper condition for use in the election.

The party representatives shall be sworn to perform faithfully their duties but shall not interfere with the officials or assume any of their duties. When a machine has been so examined by the representatives, it shall be sealed with a numbered metal seal. The representatives shall certify to the number of the machines, whether all of the

counters are set at zero (000), and the number registered on the protective counter and on the seal.

The system meets this requirement.

§19321. The elections official shall affix ballot labels to the machines to correspond with the sample ballot for the election. He or she shall employ competent persons to assist him or her in affixing the labels and in putting the machines in order. Each machine shall be tested to ascertain whether it is operating properly.

The system meets this requirement.

§19322. When a voting machine has been properly prepared for an election, it shall be locked against voting and sealed. After that initial preparation, a member of the precinct board or some duly authorized person, other than the one preparing the machines, shall inspect each machine and submit a written report. The report shall note the following: (1) Whether all of the registering counters are set at zero (000), (2) whether the machine is arranged in all respects in good order for the election, (3) whether the machine is locked, (4) the number on the protective counter, (5) the number on the seal. The keys shall be delivered to the election board together with a copy of the written report, made on the proper blanks, stating that the machine is in every way properly prepared for the election.

The system meets this requirement.

§19340. Any member of a precinct board who has not previously attended a training class in the use of the voting machines and the duties of a board member shall be required to do so, unless appointed to fill an emergency vacancy.

The system meets this requirement.

§19341. The precinct board shall consist of one inspector and two judges who shall be appointed and compensated pursuant to the general election laws. One additional inspector or judge shall be appointed for each additional voting machine used in the polling place.

The system meets this requirement.

§19360. Before unsealing the envelope containing the keys and opening the doors concealing the counters the precinct board shall determine that the number on the seal on the machine and the

number registered on the protective counter correspond to the numbers on the envelope.

Each member of the precinct board shall then carefully examine the counters to see that each registers zero (000). If the machine is provided with embossing, printing, or photography devices that record the readings of the counters the board shall, instead of opening the counter compartment, cause a “before election proof sheet” to be produced and determined by it that all counters register zero (000).

If any discrepancy is found in the numbers registered on the counters or the “before election proof sheet” the precinct board shall make, sign, and post a written statement attesting to this fact. In filling out the statement of return of votes cast, the precinct board shall subtract any number shown on the counter from the number shown on the counter at the close of the polls.

The system meets this requirement.

§19361. The keys to the voting machines shall be delivered to the precinct board no later than 12 hours before the opening of the polls. They shall be in an envelope upon which is written the designation and location of the election precinct, the number of the voting machine, the number on the seal, and the number registered on the protective counter. The precinct board member receiving the key shall sign a receipt.

The envelope shall not be opened until at least two members of the precinct board are present to determine that the envelope has not been opened.

At the close of the polls the keys shall be placed in the envelope supplied by the official and the number of the machine, the number written on the envelope.

The system meets this requirement.

§19362. The exterior of the voting machine and every part of the polling place shall be in plain view of the election precinct board and the poll watchers.

Each machine shall be at least four feet from the poll clerk’s table.

The system meets this requirement.

§19363. Voters shall not remain in or occupy the booths or compartments longer than is necessary to mark their ballots, which shall not exceed five

minutes. However, where no other voter would be inconvenienced, a longer period shall be allowed.

The system meets this requirement.

§19370. As soon as the polls are closed, the precinct board, in the presence of the watchers and all others lawfully present, shall immediately lock the voting machine against voting and open the counting compartments, giving full view of all counter numbers. A board member shall in the order of the offices as their titles are arranged on the machine, read and distinctly announce the name or designating number and letter on each counter for each candidate's name and the result as shown by the counter numbers. He or she shall also in the same manner announce the vote on each measure.

If the machine is provided with a recording device, in lieu of opening the counter compartment the precinct board shall proceed to operate the mechanism to produce the statement of return of votes cast record in a minimum of three copies, remove the irregular ballot, if any, record on the statement of return of votes cast record. The irregular ballot shall, be attached to the statement of result record of votes cast for the machine and become a part thereof. One copy of the statement of return of votes cast for each machine shall be posted upon the outside wall of the precinct for all to see. The statement of return of votes cast for each machine for the precinct shall constitute the precinct statement of result of votes cast.

The system meets this requirement.

§19371. Before adjourning, the precinct board shall seal the operating lever with the seal provided and lock the machine so that the voting and counting mechanism may not be operated.

It shall remain locked and sealed against operation until the time for filing a contest of election has expired, which shall not exceed a period of 30 days following the declaration of the result of the election by the body canvassing the returns.

Does not apply.

§19380. During the reading of the result of votes cast, any candidate or watcher who may desire to be present shall be admitted to the polling place. The proclamation of the result of the votes cast shall be distinctly announced by the precinct board who shall read the name of each candidate, or the designating number and letter of his or her counter, and the vote registered on the counter. The board shall also read the vote cast for and against each measure submitted. The board shall not count votes cast for write-in candidates, but shall have these counted by the elections official. During the proclamation, many opportunities shall be given to any person lawfully

present to compare the result so announced with the counter dials of the machine, and any necessary corrections shall immediately be made by the precinct board, after which the doors of the voting machine shall be closed and locked.

If the machine is provided with a recording device, the alternate procedures in Section 19370 may be used.

The system meets this requirement.

§19381. In each election district where voting machines are used, statements of the results of the vote cast shall be printed to conform with the type of voting machine used.

The designating number and letter on the counter for each candidate shall be printed next to the candidate's name on the statements of result of the vote cast. Two such statements shall be used in each election district.

The system meets this requirement.

§19382. The statement of the result of votes cast, which shall be certified by the precinct board, shall contain:

- (a) The total number of votes cast.**
- (b) The number of votes cast for each candidate and measure as shown on the counter.**
- (c) The number of votes for persons not nominated.**
- (d) Printed directions to the precinct board for their guidance before the polls are opened and when the polls are closed.**
- (e) A certificate, which shall be signed by the election officers before the polls are opened, showing:**
 - (1) The delivery of the keys in a sealed envelope.**
 - (2) The number on the seal.**
 - (3) The number registered on the protective counter.**
 - (4) Whether all of the counters are set at zero (000).**
 - (5) Whether the public counter is set at zero (000).**
 - (6) Whether the ballot labels are properly placed in the machine.**
- (f) A certificate that shall be filled out after the polls have been closed, showing:**
 - (1) That the machine has been locked against voting and sealed.**
 - (2) The number of voters as shown on the public counter.**
 - (3) The number on the seal.**
 - (4) The number registered on the protective counter.**
 - (5) That the voting machine is closed and locked.**

The system meets this requirement.

§19383. A member of the precinct board shall enter the vote, as registered, on the statements of result of votes cast, in the same order on the space that has the same name or designating number and letter, after which another member shall verify the figures by calling them off in the same manner from the counters of the machine.

The counter compartment of the voting machine shall remain open until the official returns and all other reports have been fully completed and verified by the precinct board.

If the machine is provided with a recording device, the alternate procedures in Section 19370 may be used.

The system meets this requirement.

§19384. The precinct board shall, before it adjourns, post conspicuously on the outside of the polling place a copy of the result of the votes cast at the polling place. The copy of the result shall be signed by the members of the precinct board.

If the machine is provided with a recording device, the statement of result of vote's cast produced by operating its mechanism may be considered the "result of the votes cast" at the polling place.

The system meets this requirement.

§19385. The precinct board shall immediately transmit unsealed to the elections official a copy of the result of the votes cast at the polling place, the copy shall be signed by the members of the precinct board, and shall be open to public inspection.

The system meets this requirement.

§19386. Before proceeding to canvass the returns of an election at which voting machines have been used to register the votes cast, the board authorized to canvass returns shall open the counter compartment and compare the records of votes cast for the several candidates voted for and for and against the several measures voted upon shown on each machine with those recorded on the statement of results of votes cast prepared from that machine by the precinct board. Any errors found on the statement shall be corrected by crossing out the recorded incorrect number, and recording the correct number nearby.

The system meets this requirement.

- 14. §504 (b): A review of federal statutes or regulations, which address the application.**

The Voting Rights Act of 1965, as amended (42 U.S.C. 1973), requires all elections in certain covered jurisdictions to provide registration and voting materials and oral assistance in the language of a qualified language minority group in addition to English. Currently in California, there are six VRA languages (Spanish, Chinese, Japanese, Vietnamese Korean and Tagalog) as prescribed under the law.

The system fully meets this requirement. The AccuVote-TSx can be configured to display a ballot in any of the required languages. Additionally, the AccuView will automatically print the voter verifiable paper ballot image in the same language used for the ballot on the AccuVote-TSx. Finally AccuVote-OS ballots can be printed in any of the required languages.

The National Voter Registration Act of 1993 (42 U.S.C. 1973gg and 11 CFR 8) allows for the casting of provisional ballots through Fail-Safe Voting procedures.

Provisional ballots can be cast using the AccuVote-OS but it is not recommended that the TSx be used for provisional voting.

The Voting Accessibility for the Elderly and Handicapped Act of 1984 (42 U.S.C. 1973ee through 1973ee-6) requires each political subdivision conducting elections within each state to assure that all polling places for federal elections are accessible to elderly and handicapped voters, except in the case of an emergency as determined by the state's chief election officer or unless the state's chief election officer: (1) determines, by surveying all potential polling places, that no such place in the area is accessible or can be made temporarily accessible, and (2) assures that any handicapped voter assigned to an inaccessible polling place will, upon advance request under established state procedures, either be assigned to an accessible polling place or be provided an alternative means of casting a ballot on election day.

The system is at least as accessible as the previously certified version.

The Retention of Voting Documentation (42 U.S.C. 1974 through 1974e) statute applies in all jurisdictions and to all elections in which a federal candidate is on a ballot. It requires elections officials to preserve for 22 months all records and papers which came into their possession relating to an application, registration, payment of a poll tax, or other act requisite to voting. Note: The US Department of Justice considers this law to cover all voter registration records, all poll lists and similar documents reflecting the identity of voters casting ballots at the polls, all applications for absentee ballots, all envelopes in which absentee ballots are returned for tabulation, all documents containing oaths of voters, all documents relating to challenges to voters or absentee ballots, all tally sheets and canvass reports, all records reflecting the appointment of persons entitled to act as poll officials or poll watchers, and all computer programs used to tabulate votes electronically. In addition, it is the Department of Justice's view that the phrase "other act requisite to voting" requires the retention of the ballots themselves, at least in those jurisdictions where a voter's electoral preference is manifested by marking a piece of paper or by punching holes in a computer card.

The system meets this requirement. The AccuVote-TSx allows for the retention of the electronic record of the ballots as well as the paper record produced by the AccuView printer module.

15. 504 (c): A copy of the approved Qualification Test results released directly to the Secretary of State by a Nationally Recognized Test Laboratory (NRTL).

Copies of the VSTL qualification testing reports from both Ciber, Inc. and Wyle Laboratories have been received and are on file.

16. §504 (d): A review, if applicable, of transcripts or other materials from prior meetings or hearings on the proposed system, procedure, or modification, either in whole or in part.

The relevant documentation has been reviewed.

17. §504 (e): A review, if applicable, of any procedures manuals, guidelines or other materials adopted for use with the system addressed by the application.

The procedures for use and other relevant materials for this system have been reviewed. The system use procedures will not be finalized until final State certification of the system to allow for incorporation of any conditions that are imposed on the system as part of the certification.

18. §504 (f): A review of any effect the application will have on the security of the election system.

The application was reviewed for any potential effect on the security of the election system. As noted previously, the only issue noted was the fixed nature of the encryption key on the Administrator smart card. This should be addressed by requiring the vendor to issue Administrator cards with encryption keys that are unique to each jurisdiction and to each election as a condition for certification

19. §504 (g): A review of any effect the application will have on the accuracy of the election system.

The system was tested by federal and state testers and deemed to record votes accurately.

20. §504 (h): A review of any effect the application will have on the ease and convenience with which voters use the system.

The proposed system is not any less voter friendly than the currently certified Diebold systems.

21. §504 (i): A review of any effect the application will have on the timeliness of vote reporting.

The proposed system will not delay the reporting of election results relative to the currently certified system.

22. §504 (j): A review of any effect the application will have on the overall efficiency of the election system.

The proposed system is at least as efficient as the currently certified Diebold voting system.

23. §504 (k): A Description of Deposit Materials showing that the Ballot Tally Software Source Code has been deposited in Escrow with an Escrow Company approved pursuant to Chapter 6, Division 7, Title 2 of the California Administrative Code, beginning with Section 20630.

The vendor must deposit the source code in compliance with this requirement before this system can be used.

24. §601: The Secretary of State shall not approve a proposed item without a finding that the item conforms to all applicable laws, procedures and regulations, including the right to a secret ballot, does not compromise the accuracy, security or integrity of the election process, nor interferes with the voter's ease and convenience in voting.

As noted above, with procedures in place, the proposed system is at least as effective in maintaining the secrecy of the ballot, the accuracy, security and integrity of the elections process, and voter ease and convenience as the currently certified Diebold systems.

V. ADDITIONAL CONSIDERATIONS

The non-AccuView configuration does not include an Accessible Voter Verified Paper Audit Trail (AVVPAT). Therefore, under the June 15, 2004 AVVPAT standards and the April 30, 2004 decertification directive, the proposed AccuVote-TS system can only be used in jurisdictions that used the system in the March 2004 election. Further, the proposed system, without a modification to include an AVVPAT, can only be used through January 1, 2006 in those jurisdictions.

VI. PUBLIC COMMENT

On April 6, 2005, an “open house” was held at the Secretary of State headquarters for invited representatives of the accessibility community, as well as county elections officials and members of the Technical Advisory Board to observe and review this system with SOS and vendor staff. Participants included:

- 28 elections staff representing ten counties,
- six representatives of the accessibility community,
- three representatives of the Technical Advisory Board, and
- three others from the public at large.

Several participants in this event have subsequently sent written comments that have been submitted with this report.

The major issues raised in these comments, as well as by other participants in the “open house” are:

1. People with limited hand dexterity could have difficulty inserting the Voter Access smart card without some form of assistance.
2. There is no “sip-and-puff” capability for people with limited hand dexterity.
3. If the AccuVote-TSx voting tablet is removed from the cradle (i.e., for placement in the voter’s lap or for curbside voting), the AccuView Printer Module does not go with the tablet. People who vote in this mode will not have the opportunity to verify their ballot with the paper trail. In fact, when the tablet is replaced in the stand, the current firmware is not capable of printing to the AccuView any ballots that were cast while the tablet was out of its cradle.
4. The voter verified paper trail cannot be read or verified by someone who is blind.

VII. RECOMMENDATION

Staff recommends the certification of the Diebold Election Systems, Inc. GEMS Version 1.18.22, AccuVote-TSx Ballot Station, firmware version 4.6.2, with AccuView Printer Module hardware, Key Card Tool Version 1.0.1, SpyruS Voter Card Encoder 1.3.2, VC Programmer 4.1.11, AccuVote-OS firmware 1.96.4, AccuVote-OS firmware 2.0.12 with AccuFeed with the following conditions:

1. The AccuVote-TSx may not be used for provisional voting.
2. The ‘Select Unreferenced Precinct’ option may not be used when generating SOVC reports.
3. A final version of procedures for use of the AccuVote-TSx , firmware version 4.6.2 with AccuView Printer Module appropriately including certification conditions are submitted to and approved by the Secretary of State.
4. No additional software developed by the Vendor other than that specifically listed in this certification shall be installed on a computer running GEMS Version 1.18.22.

5. No substitution or modification of the voting systems shall be made with respect to any component of the voting systems, including the Procedures, until the Secretary of State has been notified in writing and has determined that the proposed change or modification does not impair the accuracy and efficiency of the voting systems sufficient to require a re-examination and approval.
6. The Voting System can be used only if the requestor complies with the security measures that apply to it that are contained in the directive of the Secretary of State dated April 30, 2004, entitled *Decertification and Withdrawal of Approval of Certain DRE Voting Systems and Conditional Approval of the Use of Certain DRE Voting Systems*, as further clarified by the Secretary of State's memorandum dated May 14, 2004, and any other agreement between the vendor and the Secretary of State.
7. The Secretary of State reserves the right, with reasonable notice to Vendor and to the counties using any of the voting systems, to modify the Procedures used with any of the voting systems and to impose additional requirements with respect to the use of any of the systems if the Secretary of State determines that such modifications or additions are necessary to enhance the accuracy, reliability or security of any of the voting systems. Such modifications or additions shall be deemed to be incorporated herein as if set forth in full.
8. Any county using any voting system shall, prior to such use, file with the California Secretary of State a copy of its Election Observer Panel plan.